



DEPARTMENT OF THE NAVY

BUREAU OF MEDICINE AND SURGERY
WASHINGTON, D.C. 20372-5120

IN REPLY REFER TO
BUMEDINST 6470.19
BUMED-21
24 Aug 90

BUMED INSTRUCTION 6470.19

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical Department Personnel

Subj: LASER SAFETY FOR MEDICAL FACILITIES

Ref: (a) SPAWARINST 5100.12A (NOTAL)
(b) ANSI Z136.1-1986, American National Standard for the Safe Use of Lasers (NOTAL)
(c) ANSI Z136.3-1988, American National Standard for the Safe Use of Lasers in Health Care Facilities (NOTAL)
(d) NAVMEDCOMINST 6470.2A
(e) Title 21, Code of Federal Regulations, Part 1040
(f) BUMEDINST 6320.66

1. Purpose. To provide laser safety guidance for medical facilities.

2. Scope. Applies to all medical treatment and laboratory activities using lasers or laser systems. This instruction does not apply to the use of lasers or laser systems for military, industrial, or nonmedical research applications.

3. General. Reference (a) issues general guidance on establishing a command laser hazard control program, but does not address safety problems generic to the clinical setting. Lasers are commonly used at healthcare facilities for surgery, patient treatment, and equipment alignment. Medical laboratories, both research and clinical, use a variety of equipment with lasers. Reference (b) provides general information on laser classification, safety, and control measures. Reference (c) provides specific guidance for safe use of lasers and laser systems in healthcare facilities. Reference (d) issues the procedures for medical surveillance.

4. Definitions

a. Laser Classification. Commercial lasers used in health-care facilities must be classified by the manufacturer per reference (e). This classification is provided by the manufacturer. The four classes of lasers are described in references (b), (c), and (d). The laser classification system is based on the ability of the laser beam to cause biological damage

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to the eye and skin. In summary, class 1 lasers are considered eye safe. Class 2 lasers are not hazardous for momentary viewing. Class 3 and 4 lasers present hazards under conditions of direct or specular viewing and in the case of class 4 lasers, diffuse reflections. Class 4 lasers may also present skin and fire hazards. Control measures are applicable to lasers designated class 2 and above. By verifying the classification, the need to directly measure optical radiation, make quantitative analysis of hazard potential, and calculate the maximum permissible exposure (MPE) is eliminated.

b. Laser Safety Officer (LSO). A person who has the knowledge, authority and responsibility to monitor, evaluate, and enforce the control of laser hazards.

5. Responsibilities

a. Chief, Bureau of Medicine and Surgery (BUMED)

(1) Represents the Navy Medical Department on American National Standard Institute (ANSI) committees for laser safety guidelines.

(2) Represents the Navy Medical Department on the Laser Safety Review Board (LSRB) as required by reference (a).

(3) Establishes the Navy's exposure and medical surveillance standards for laser exposure to personnel.

(4) Oversees implementation of policy guidance for laser safety at medical facilities.

(5) Serves as the primary point of contact with Chief of Naval Operations (OPNAV) directorates, systems commands, and other Government agencies on matters concerning laser safety at medical facilities.

b. Navy Environmental Health Center (NAVENVIRHLTHCEN)

(1) Provides technical assistance and guidance concerning laser safety and health hazards for medical facilities. Conducts laser health hazard surveys when requested.

(2) Maintains an inventory of all medical facility lasers.

(3) Provides a representative to attend the Navy LSRB as required by reference (a).

6. Action

a. Commanding officers and officers in charge. Activities with class 3 or 4 lasers or laser systems must use references (c) and (d) as guidance for the safe use of lasers. Medical research and development activities with class 3 or 4 lasers, or laser systems must use references (b) and (d) for guidance. Specific actions must include:

(1) Appoint an LSO, in writing. For healthcare facilities, this person must receive training, that as a minimum, meets the requirements found in reference (c). Medical research facilities should use the training requirements listed in reference (b). The LSO may be designated from among such personnel as the radiation health officer, industrial hygienist, safety officer, or laser operator.

(2) Coordinate with NAVENVIRHLTHCEN to have the LSRB evaluate any locally designed, constructed, or modified laser or laser system not used as originally intended by the manufacturer or not classified per reference (e).

(3) Use of credentialled physicians or other healthcare providers who perform medical treatment or surgical procedures using a laser per reference (f).

b. The Laser Safety Officer must:

(1) On at least an annual basis, conduct a laser hazards evaluation of class 3 and 4 laser use areas and ensure that action is taken to correct any problems or discrepancies.

(2) Investigate all laser accidents and incidents and submit reports as required by reference (d).

(3) Maintain an inventory of all laser and laser systems. Forward a copy to NAVENVIRHLTHCEN annually by 30 June.

(4) Ensure that safe operating practices are established for each laser system and space containing a laser. Written safety procedures must be available for each laser.

(5) Ensure that operational checklists are developed for each laser.

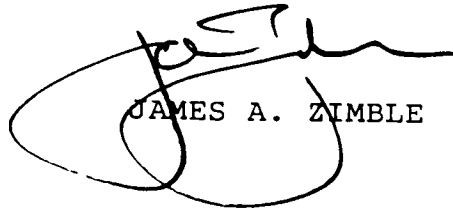
(6) Ensure that appropriate laser protective equipment is available and used.

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(7) Ensure personnel receive medical surveillance examinations as required by reference (d).

(8) Ensure operators and support staff receive appropriate education and safety training. This training should include command-specific requirements as well as appropriate information recommended by references (b) or (c). Commercial courses may be used to satisfy training requirements. A record documenting training is to be maintained.

7. Technical Assistance. Contact the Navy Environmental Health Center, 2510 Walmer Avenue, Norfolk, VA 23513-2617, AUTOVON 564-4657 or (804) 444-4657 for assistance, advice, or for making arrangements for onsite hazard evaluations.



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